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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,860	12/12/2000	Donald C.D. Chang	PD-200275	6644

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EXAMINER	
ZEWDU, MELESS NMN	

ART UNIT	PAPER NUMBER
2683	

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6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/735,860	CHANG ET AL.	
	Examiner	Art Unit	
	Meless N Zewdu	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2003*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11,12,18 and 20-22* is/are rejected.

7)☐ Claim(s) *9,10,13-17 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6, 7, 12.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment (B)

1. This action is in response to the communication filed on 10/07/03.

2. Claims 1-22 are pending in this action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 recites the limitation "a hub and router circuit coupled to the beam forming network" in line 7. There is insufficient antecedent basis for this limitation in the claim. The claim is an apparatus claim which defines physical connection of cooperating embodiments. The "beam forming network coupled to the plurality of reconfigurable elements", in lines 5-6, is directed to a satellite (high altitude) device while the other beam forming, recited on line 7, is associated to a ground gateway/hub. There is not physical/architectural connection between the two beam forming networks.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Liron (US 5,740,164).

As per claim 18: a method of operating communications system comprising:

forming a plurality of multiple communication links directed to a plurality of high altitude communication devices reads on '164 (see col. 7, lines 10-43). Liron's satellite constellations can be considered as including high altitude orbits.

dividing a communication into a plurality of datagrams reads on '164 (see col. 8, lines 8-18).

routing the plurality of datagrams through the plurality of multiple communication links reads on '164 (see col. 8, lines 8-18).

directing the datagrams from the plurality of high altitude communication devices to a gateway station reads on '164 (see col. 7, lines 35-col. 8, line 41; col. 11, line 61-col. 12, line 11).

re-assembling the datagrams into the communication reads on '164 (see col. 7, lines 41-45; col. 11, line 61-col. 12, line 11). A gateway is (or can be considered as) a destination node.

Claim Rejections - 35 USC § 103

I. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

II. Claims 1-5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liron (US 5,740,164) in view of Ibanez-Meier et al. (Meier) (US 6,151,308).

As per claim 1: a communication system comprising:

a user terminal establishing a plurality of multiple dynamic links corresponding respectively to said user terminal, said user terminal generating multiple communication portions of a communication and transmitting the multiple communication portion through said multiple dynamic links '164 (see col. 7, lines 32-43; col. 14, lines 43-56). The origin of the telephone calls, which carries voice, data or video information is a user terminal.

A gateway terminal receiving the communication portions from the high altitude communication device and reassembling the communication portions into the communication reads on '164 (see col. 7, line 41-43). A gateway is a destination node.

But, Liron does not explicitly teach about a plurality of high altitude communication devices, as claimed by applicant. However, in a related field of endeavor, Meier teaches that satellites can be located in any orbit (see col. 3, line 66 col. 4, line 41; col. 8, lines 4-39). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Liron's teaching with that of Meier for the advantage of providing world wide communication services (see col. 1, lines 21-28).

As per claim 2: a system wherein said high altitude communication device comprises a stratospheric platform reads on '308 (see col. 4, lines 2-24).

As per claim 3: a system wherein said high altitude communication device is selected from the group consisting of a LEO satellite, a MEO satellite, or a GEO satellite reads on '308 (see col. 4, lines 11-24).

As per claim 4: a system wherein said user terminal is mobile reads on '308 (see col.8, lines 4-39).

As per claim 5: a system wherein said multiple dynamic links are capable of having independently varying data rate reads on '164 (see col. 7, lines 10-43).

As per claim 7: a system wherein said router receives the communication portions and arranges the communication portions in a predetermined sequence reads on '164 (see col. 7, lines 35-43).

As per claim 11: a system wherein said user terminal comprises a TCP/IP protocol for transmitting the multiple communication portions reads on 9: a system wherein said user terminal establishes a plurality of for ward links and on '308 (see col. 14, lines 46-61). The Internet is know to use TCP/IP protocol.

III. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liron in view of Meier as applied to claim 1 above, and further in view of Nouri (US 6,484,213 B1).

As per claim 6; but Liron in view of Meier do not explicitly teach about a user terminal comprising a router for routing uplink communication portion through said links, as claimed by applicant. However, in a related field of endeavor, Nouri teaches by stating that a communication node is, typically, a computer of some type, including a personal computer (PC), minicomputer, etc. and generally includes a network interface card (NIC) for interfacing the computer to a network device, such as, among others, hub and router (see col. 1, lines 39-49). In other words, the NIC functions, at least as a router. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to add Nouri's network interface cards (NICs) to the above discussed prior art system for the advantage of upgrading communication network into an enhanced hybrid networking system (see col. 1, lines 7-10).

IV. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liron in vie of Meier, as applied to claim 1 above, and further in view of Schefte et al (Schefte) (US 5,990,839).

As per claim 8: but, Liron in view Meier do not explicitly teach about a user terminal that comprises a multiple beam antenna capable of simultaneously generating multiple dynamic links, as claimed by applicant. However, in a related field of endeavor, Schefte provides a portable radio unit capable of operating in a satellite communication mode wherein the portable radio unit incudes arrays of steerable (dynamic) patch antenna elements that enables the portable radio unit communicate via radio signals (see col. 1, lines 12-45; col. 2, line 31-col. 3, line 22; col. 5, lines 55-67). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the destination devices discussed above with Schefte's patch antenna system for the advantage of providing the destination devices to maintain a reasonable receive and transmit quality at a large scan angles (see col. 2, lines 48-50).

V. Claims 12 and 20 –22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liron in view of Weinberg (US 5,589,834).

As per claim 12: Liron discloses a user terminal for a communication system having a constellation of satellites (i.e. a plurality of receiving elements) (see col. 7, lines 10-26); a receiving digital beam forming network for forming a plurality of receive beams fro the plurality of elements (see col. 11, line 61-col. 12, line 11; a receiving hub and router coupled to the receiving digital beam forming network for assembling communication portions from the beams formed in the receiving beam forming network (col. 7, lines 10-43; col. 14, lines 43-63). But, Liron does not explicitly teach about a receiving direction control circuit coupled to the hub and router circuit and the receiving digital b eam

forming network for estimating relative position vectors for the high altitude communication devices and user terminal, said receiving digital beam forming network directing the receive beams to the high altitude communication devices, as claimed by applicant. However, in a related field of endeavor, Weinberg teaches that a ground gateway can determine the locations and directions of satellites and locations of users and direct satellite signals to desired user locations (see abstract). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Liron with that of Weinberg for the advantage of directing satellite signals to the locations of desired users.

As per claim 20: a user terminal for a communication system having a plurality of high altitude communications devices comprising:

a plurality of reconfigurable elements reads on '164 (see col. 7, lines 10-43). Liron's satellite constellations can be considered as including high altitude orbits.

a beam forming network coupled to the plurality of reconfigurable elements reads on '164 (see fig. 24; col. 11, lines28 col. 12, line 11; col. 14, lines 11-63). Furthermore, beam forming network is an inherent feature to a satellite.

a hub and router circuit coupled to the beam forming network reads on '164 (see col. 14, lines 43-63). But, Liron does not explicitly teach about controlling the generation of and direction of a plurality of simultaneous multiple links for communication with the plurality of high altitude communications devices using the plurality of elements, as claimed by applicant. However, in a related field of endeavor, Weinberg teaches that a ground gateway can determine the locations and directions of satellites and locations of users and direct satellite signals to desired user locations (see abstract). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was

made to modify the teaching of Liron with that of Weinberg for the advantage of directing satellite signals to the locations of desired users.

As per claim 21: a method including prior to the step of reassembling, further classifying the datagrams according to protocol reads on '164 (see col. Col. 11, line 61-col. 12, line 11). It is obvious that when datagrams are sent in different routes, classifying them according to protocols used by the different routes need to be considered.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liron in view of Weinberg, as applied to claim 20 above, and further in view of Dillon et al. (Dillon) (US 5,852,721).

As per claim 22: but, Liron in view of Weinberg do not explicitly teach about a starting a timer, prior to re-assembling received packets, for counting time by which to discard datagrams arriving in excess of a predetermined time and generating a resend signal, as claimed by applicant. However, in a related field of endeavor, Dillon teaches about a method wherein when a gateway utilizing a timer fails to receive an acknowledgement signal from a terminal before an end of a predetermined time and resends the packets (see col. 12, lines 18-36). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the above references with the teaching of Dillon for the advantage of resending packets, in case, if a need to do so arises.

Allowable Subject Matter

VI. Claims 9, 10, 13-17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N Zewdu whose telephone number is (703) 306-5418. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703) 308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Meless Zewdu M. Z

Examiner

23 January 2004.

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600